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| Ref # | Hits | Search Query | DBs | Default Operator | Plurals | Time Stamp |
|---|---|---|---|---|---|---|
| L1 | 49 | (US-5869824-$ or US-6292830-$ or US-6396472-$ or US-5272696-$ or US-5928327-$ or US-6212657-$ or US-5964874-$ or US-5968170-$ or US-5991860-$ or US-6119212-$ or US-4484262-$ or US-4984271-$ or US-4996645-$ or US-5787234-$ or US-5912932-$ or US-6252544-$ or US-6381324-$ or US-6429812-$ or US-5619642-$ or US-5905854-$ or US-4292669-$ or US-5586289-$ or US-5805442-$ or US-5892536-$ or US-5975737-$ or US-5982362-$).did. or (US-5986692-$ or US-6049833-$ or US-6192281-$ or US-6201996-$ or US-4607348-$ or US-4887075-$ or US-5001642-$ or US-5303348-$ or US-5355453-$ or US-5388243-$ or US-5568455-$ or US-5592596-$ or US-5592549-$ or US-5594922-$ or US-5606365-$ or US-5606686-$ or US-5621888-$ or US-5623625-$ or US-5719786-$ or US-5751844-$ or US-5764980-$ or US-5802366-$ or US-5829019-$).did. | USPAT | OR | ON | 2006/02/16 20:47 |
| L2 | 1 | (US-5388243-$).did. | USPAT | OR | ON | 2006/02/16 20:47 |
| L3 | 42 | US-4686620-$.DID. OR US-4995035-$.DID. OR US-5005122-$.DID. OR US-5093912-$.DID. OR US-5133065-$.DID. OR US-5193154-$.DID. OR US-5212772-$.DID. OR US-5226157-$.DID. OR US-5276867-$.DID. OR US-5239647-$.DID. OR US-5241668-$.DID. OR US-5241670-$.DID. OR US-5276860-$.DID. OR US-5287500-$.DID. OR US-5321816-$.DID. OR US-5333315-$.DID. OR US-5347653-$.DID. OR US-5410700-$.DID. OR US-5448724-$.DID. OR US-5491810-$.DID. OR US-5495607-$.DID. | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2006/02/16 20:49 |
| L4 | 52 | US-5504873-$.DID. OR US-5544345-$.DID. OR US-5544347-$.DID. OR US-5559957-$.DID. OR US-5619644-$.DID. OR US-5638509-$.DID. OR US-5673381-$.DID. OR US-5699361-$.DID. OR US-5729743-$.DID. OR US-5751997-$.DID. OR US-5758359-$.DID. OR US-5761677-$.DID. OR US-5764972-$.DID. OR US-5778395-$.DID. OR US-5812398-$.DID. OR US-5813009-$.DID. OR US-5813017-$.DID. OR US-5875478-$.DID. OR US-5887134-$.DID. OR US-5901327-$.DID. OR US-5924102-$.DID. OR US-5950205-$.DID. OR US-5974563-$.DID. OR US-6021415-$.DID. OR US-6026414-$.DID. OR US-6052735-$.DID. | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2006/02/16 20:50 |

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| L5 | 45 | US-6076148-$.DID. OR US-6094416-$.DID. OR US-6131190-$.DID. OR US-6131095-$.DID. OR US-6148412-$.DID. OR US-6154787-$.DID. OR US-6161111-$.DID. OR US-6167402-$.DID. OR US-6212512-$.DID. OR US-6260069-$.DID. OR US-6269431-$.DID. OR US-6275953-$.DID. OR US-6301592-$.DID. OR US-6324581-$.DID. OR US-6328766-$.DID. OR US-6330570-$.DID. OR US-6356801-$.DID. OR US-6389432-$.DID. OR US-6421711-$.DID. OR US-6487561-$.DID. OR US-6519679-$.DID. OR US-6538669-$.DID. OR US-RE37601-$.DID. | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2006/02/16 20:50 |
| L6 | 2 | "20020004883".pn. or "6330642".pn. | US-PGPUB; USPAT | OR | ON | 2006/02/16 20:51 |
| L7 | 141 | 3 or 4 or 5 or 6 | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2006/02/16 20:51 |
| L8 | 310196 | SAN or storage adj area adj network | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2006/02/16 20:52 |
| L9 | 17 | 7 and 8 | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2006/02/16 20:52 |
| L10 | 22899944 | @ad<"20020909" | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2006/02/16 20:52 |
| L11 | 17 | 9 and 10 | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2006/02/16 20:52 |
| L12 | 2229739 | active or activated or inactive or inactivated | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2006/02/16 20:53 |
| L13 | 10 | 11 and 12 | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2006/02/16 20:57 |
| L14 | 3451905 | mount or mounted or unmount or unmounted or dismount or dismounted | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2006/02/16 20:57 |

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| L17 | 5243833 | 12 or 14 | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2006/02/16 21:00 |
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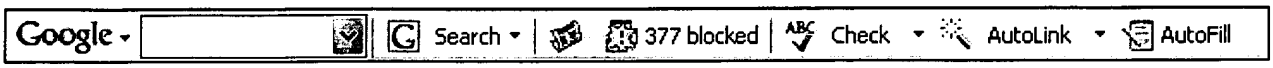


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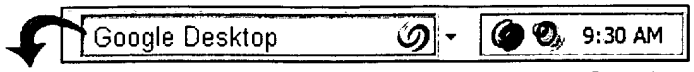

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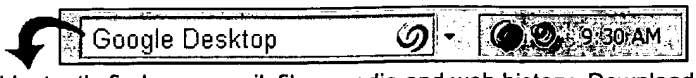

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Luca Benini, Giovanni de Micheli

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Full text available: pdf(385.22 KB) Additional Information: full citation, abstract, references, citings, index terms

This tutorial surveys design methods for energy-efficient system-level design. We consider electronic sytems consisting of a hardware platform and software layers. We consider the three major constituents of hardware that consume energy, namely computation, communication, and storage units, and we review methods of reducing their energy consumption. We also study models for analyzing the energy cost of software, and methods for energy-efficient software design and compilation. This survery ...

2 Input/Output: PB-LRU: a self-tuning power aware storage cache replacement algorithm for conserving disk energy

Qingbo Zhu, Asim Shankar, Yuanyuan Zhou

June 2004 **Proceedings of the 18th annual international conference on Supercomputing**

**Publisher:** ACM Press

Full text available: pdf(183.08 KB) Additional Information: full citation, abstract, references, citings, index terms

Energy consumption is an important concern at data centers, where storage systems consume a significant fraction of the total energy. A recent study proposed power-aware storage cache management to provide more opportunities for the underlying disk power management scheme to save energy. However, the on-line algorithm proposed in that study requires cumbersome parameter tuning for each workload and is therefore difficult to apply to real systems.This paper presents a new power-aware on-line algo ...

**Keywords**: cache management, disk storage, power management

3 Phoenix: a low-power fault-tolerant real-time network-attached storage device

Anindya Neogi, Ashish Raniwala, Tzi-cker Chiueh

October 1999 **Proceedings of the seventh ACM international conference on Multimedia (Part 1)**

**Publisher:** ACM Press

Full text available: pdf(1.38 MB) Additional Information: full citation, abstract, references, citings, index terms

Phoenix is a real-time network-attached storage device (NASD) that guarantees real-time data delivery to network clients even across single disk failure. The service interfaces that Phoenix provides are best-effort/real-time reads/writes based on unique object identifiers and block offsets. Data retrieval from Phoenix can be serviced in server push or client pull modes. Phoenix's real-time disk subsystem performance results from a standard cycle-based scan-order disk scheduling mechanism. H ...

4 GPGPU: general purpose computation on graphics hardware

David Luebke, Mark Harris, Jens Krüger, Tim Purcell, Naga Govindaraju, Ian Buck, Cliff Woolley, Aaron Lefohn

August 2004 **Proceedings of the conference on SIGGRAPH 2004 course notes GRAPH '04**

**Publisher:** ACM Press

Full text available: pdf(63.03 MB) Additional Information: full citation, abstract

The graphics processor (GPU) on today's commodity video cards has evolved into an extremely powerful and flexible processor. The latest graphics architectures provide tremendous memory bandwidth and computational horsepower, with fully programmable vertex and pixel processing units that support vector operations up to full IEEE floating point precision. High level languages have emerged for graphics hardware, making this computational power accessible. Architecturally, GPUs are highly parallel s ...

5 Human-computer interface development: concepts and systems for its management

H. Rex Hartson, Deborah Hix

March 1989 **ACM Computing Surveys (CSUR)**, Volume 21 Issue 1

**Publisher:** ACM Press

Full text available: pdf(7.97 MB) Additional Information: full citation, abstract, references, citings, index terms, review

*Human-computer interface management*, from a computer science viewpoint, focuses on the process of developing quality human-computer interfaces, including their representation, design, implementation, execution, evaluation, and maintenance. This survey presents important concepts of interface management: dialogue independence, structural modeling, representation, interactive tools, rapid prototyping, development methodologies, and control structures. *Dialogue independence* is th ...

6 Interposed proportional sharing for a storage service utility

Wei Jin, Jeffrey S. Chase, Jasleen Kaur

June 2004 **ACM SIGMETRICS Performance Evaluation Review , Proceedings of the joint international conference on Measurement and modeling of computer systems SIGMETRICS 2004/PERFORMANCE 2004**, Volume 32 Issue 1

**Publisher:** ACM Press

Full text available: pdf(339.02 KB) Additional Information: full citation, abstract, references, citings, index terms

This paper develops and evaluates new share-based scheduling algorithms for differentiated service quality in network services, such as network storage servers. This form of resource control makes it possible to share a server among multiple request flows with probabilistic assurance that each flow receives a specified minimum share of a server's capacity to serve requests. This assurance is important for safe outsourcing of services to shared utilities such as Storage Service Providers.Our appr ...

**Keywords**: differentiated service, fair sharing, multiprocessor scheduling, performance isolation, proportional sharing, quality of service, storage services, utility computing, weighted fair queuing

7 Towards an active network architecture

David L. Tennenhouse, David J. Wetherall

April 1996 **ACM SIGCOMM Computer Communication Review**, Volume 26 Issue 2

**Publisher:** ACM Press

Full text available: pdf(1.58 MB) Additional Information: full citation, abstract, citings, index terms

Active networks allow their users to inject customized programs into the nodes of the network. An extreme case, in which we are most interested, replaces packets with "capsules" - program fragments that are executed at each network router/switch they traverse.Active architectures permit a massive increase in the sophistication of the computation that is performed within the network. They will enable new applications, especially those based on application-specific multicast, information fusion, a ...

8 Distributed, object-based programming systems

Roger S. Chin, Samuel T. Chanson

March 1991 **ACM Computing Surveys (CSUR)**, Volume 23 Issue 1

**Publisher:** ACM Press

Full text available: pdf(2.97 MB) Additional Information: full citation, abstract, references, citings, index terms, review

The development of distributed operating systems and object-based programming languages makes possible an environment in which programs consisting of a set of interacting modules, or objects, may execute concurrently on a collection of loosely coupled processors. An object-based programming language encourages a methodology for designing and creating a program as a set of autonomous components, whereas a distributed operating system permits a collection of workstations or personal computers ...

**Keywords**: capability scheme, distributed operating systems, error recovery, method invocation, nested transaction, object model, object reliability, object-based programming languages, processor allocation, resource management, synchronization, transaction

9 Draft Proposed: American National Standard—Graphical Kernel System

Technical Committee X3H3 - Computer Graphics

February 1984 **ACM SIGGRAPH Computer Graphics**, Volume 18 Issue SI

**Publisher:** ACM Press

Full text available: pdf(16.07 MB) Additional Information: full citation

10 Active database systems

Norman W. Paton, Oscar Díaz

March 1999 **ACM Computing Surveys (CSUR)**, Volume 31 Issue 1

**Publisher:** ACM Press

Full text available: pdf(2.68 MB) Additional Information: full citation, abstract, references, citings, index terms, review

Active database systems support mechanisms that enable them to respond automatically to events that are taking place either inside or outside the database system itself. Considerable effort has been directed towards improving understanding of such systems in recent years, and many different proposals have been made and applications suggested. This high level of activity has not yielded a single agreed-upon standard approach to the integration of active functionality with conventional databa ...

**Keywords**: active databases, events, object-oriented databases, relational databases

11 Improving interaction: Display space usage and window management operation comparisons between single monitor and multiple monitor users

Dugald Ralph Hutchings, Greg Smith, Brian Meyers, Mary Czerwinski, George Robertson

May 2004 **Proceedings of the working conference on Advanced visual interfaces**

**Publisher:** ACM Press

Full text available: pdf(91.48 KB) Additional Information: full citation, abstract, references, citings, index terms

The continuing trend toward greater processing power, larger storage, and in particular increased display surface by using multiple monitor supports increased multi-tasking by the computer user. The concomitant increase in desktop complexity has the potential to push the overhead of window management to frustrating and counterproductive new levels. It is difficult to adequately design for multiple monitor systems without understanding how multiple monitor users differ from, or are similar to, si ...

**Keywords**: UI logs, automation, multiple monitors, space management, user interaction, window management

12 Aurora: a new model and architecture for data stream management

Daniel J. Abadi, Don Carney, Ugur Çetintemel, Mitch Cherniack, Christian Convey, Sangdon Lee, Michael Stonebraker, Nesime Tatbul, Stan Zdonik

August 2003 **The VLDB Journal — The International Journal on Very Large Data Bases**, Volume 12 Issue 2

**Publisher:** Springer-Verlag New York, Inc.

Full text available: pdf(585.97 KB) Additional Information: full citation, abstract, citings, index terms

Abstract.This paper describes the basic processing model and architecture of Aurora, a new system to manage data streams for monitoring applications. Monitoring applications differ substantially from conventional business data processing. The fact that a software system must process and react to continual inputs from many sources (e.g., sensors) rather than from human operators requires one to rethink the fundamental architecture of a DBMS for this application area. In this paper, we present Aur ...

**Keywords**: Continuous queries, Data stream management, Database triggers, Quality-of-service, Real-time systems

13 Wireless amd Mobile Networks Performance: Power-aware data management for small devices

Sami Rollins, Kevin Almeroth, Dejan MilojivHiE, Kiran Nagaraja

September 2002 **Proceedings of the 5th ACM international workshop on Wireless mobile multimedia**

**Publisher:** ACM Press

Full text available: pdf(98.99 KB) Additional Information: full citation, abstract, references, citings, index terms

Pervasive computing devices such as Personal Digital Assistants (PDAs) and laptop computers are becoming increasingly ubiquitous. The future promises even more advanced devices such as digital watches, jewelry, and even clothing. However, as pervasive devices become more widely used for more advanced applications, their resource limitations are becoming more apparent. In this work, we focus on data management and power limitations. We investigate the benefit of using power-aware schemes to autom ...

**Keywords**: content management, energy, small devices

14 Recovery management in QuickSilver

Rober Haskin, Yoni Malachi, Gregory Chan

February 1988 **ACM Transactions on Computer Systems (TOCS)**, Volume 6 Issue 1

**Publisher:** ACM Press

Full text available: pdf(2.21 MB) Additional Information: full citation, abstract, references, citings, index terms, review

This paper describes QuickSilver, developed at the IBM Almaden Research Center, which uses atomic transactions as a unified failure recovery mechanism for a client-server structured distributed system. Transactions allow failure atomicity for related activities at a single server or at a number of independent servers. Rather than bundling transaction management into a dedicated language or recoverable object manager, Quicksilver exposes the basic commit protocol and log rec ...

15 Policy optimization for dynamic power management

G. A. Paleologo, L. Benini, A. Bogliolo, G. De Micheli

May 1998 **Proceedings of the 35th annual conference on Design automation**

**Publisher:** ACM Press

Full text available: pdf(239.25 KB) Publisher Site

Additional Information: full citation, abstract, references, citings, index terms

Dynamic power management schemes (also called policies) can be used to control the power consumption levels of electronic systems, by setting their components in different states, each characterized by a performance level and a power consumption. In this paper, we describe power-managed systems using a finite-state, stochastic model. Furthermore, we show that the fundamental problem of finding an optimal policy which maximizes the average performance level of a system, subject to a ...

**Keywords**: emulation, functional simulation, reconstruction, visibility

16 Intelligent database caching through the use of page-answers and page-traces

Nabil Kamel, Roger King

December 1992 **ACM Transactions on Database Systems (TODS)**, Volume 17 Issue 4

**Publisher:** ACM Press

Full text available: pdf(3.08 MB)

Additional Information: full citation, abstract, references, citings, index terms

In this paper a new method to improve the utilization of main memory systems is presented. The new method is based on prestoring in main memory a number of query answers, each evaluated out of a single memory page. To this end, the ideas of page-answers and page-traces are formally described and their properties analyzed. The query model used here allows for selection, projection, join, recursive queries as well as arbitrary combinations. We also show how to apply the approach under update ...

**Keywords**: artificial intelligence, databases, page access

17 Integrated document caching and prefetching in storage hierarchies based on Markov-chain predictions

Achim Kraiss, Gerhard Weikum

August 1998 **The VLDB Journal — The International Journal on Very Large Data Bases**, Volume 7 Issue 3

**Publisher:** Springer-Verlag New York, Inc.

Full text available: pdf(603.01 KB) Additional Information: full citation, abstract, citings, index terms

Large multimedia document archives may hold a major fraction of their data in tertiary storage libraries for cost reasons. This paper develops an integrated approach to the vertical data migration between the tertiary, secondary, and primary storage in that it reconciles speculative prefetching, to mask the high latency of the tertiary storage, with the replacement policy of the document caches at the secondary and primary storage level, and also considers the interaction of these policies with ...

**Keywords**: Caching, Markov chains, Performance, Prefetching, Scheduling, Stochastic modeling, Tertiary storage

18 Fortran 8X draft

Loren P. Meissner
December 1989 **ACM SIGPLAN Fortran Forum**, Volume 8 Issue 4
**Publisher:** ACM Press
Full text available: pdf(21.36 MB) Additional Information: full citation, abstract, index terms

**Standard Programming Language Fortran.** This standard specifies the form and establishes the interpretation of programs expressed in the Fortran language. It consists of the specification of the language Fortran. No subsets are specified in this standard. The previous standard, commonly known as "FORTRAN 77", is entirely contained within this standard, known as "Fortran 8x". Therefore, any standard-conforming FORTRAN 77 program is standard conforming under this standard. New features can b ...

19 Relational Database Systemsr

Won Kim
September 1979 **ACM Computing Surveys (CSUR)**, Volume 11 Issue 3
**Publisher:** ACM Press
Full text available: pdf(2.67 MB) Additional Information: full citation, references, citings, index terms

20 Serverless network file systems

Thomas E. Anderson, Michael D. Dahlin, Jeanna M. Neefe, David A. Patterson, Drew S. Roselli, Randolph Y. Wang
February 1996 **ACM Transactions on Computer Systems (TOCS)**, Volume 14 Issue 1
**Publisher:** ACM Press
Full text available: pdf(2.69 MB) Additional Information: full citation, abstract, references, citings, index terms

We propose a new paradigm for network file system design: serverless network file systems. While traditional network file systems rely on a central server machine, a serverless system utilizes workstations cooperating as peers to provide all file system services. Any machine in the system can store, cache, or control any block of data. Our approach uses this location independence, in combination with fast local area networks, to provide better performance and scalability th ...

**Keywords**: RAID, log cleaning, log structured, log-based striping, logging, redundant data storage, scalable performance



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**21** Associative hardware and software techniques for integrity control

Y. C. Hong, Stanley Y. W. Su

September 1981 **ACM Transactions on Database Systems (TODS)**, Volume 6 Issue 3

**Publisher:** ACM Press

Full text available: pdf(1.85 MB) Additional Information: full citation, abstract, references, citings, index terms

This paper presents the integrity control mechanism of the associative processing system, CASSM. The mechanism takes advantage of the associative techniques, such as content and context addressing, tagging and marking data, parallel processing, automatic triggering of integrity control procedures, etc., for integrity control and as a result offers three significant advantages: (1) The problem of staging data in a main memory for integrity checking can be eliminated because database storage ...

**Keywords**: assertion and trigger, associative techniques, cellular-logic devices, database integrity, database management, integrity control

**22** Multimedia streaming and services: PROMISE: peer-to-peer media streaming using CollectCast

Mohamed Hefeeda, Ahsan Habib, Boyan Botev, Dongyan Xu, Bharat Bhargava

November 2003 **Proceedings of the eleventh ACM international conference on Multimedia**

**Publisher:** ACM Press

Full text available: pdf(280.35 KB) Additional Information: full citation, abstract, references, citings, index terms

We present the design, implementation, and evaluation of PROMISE, a novel peer-to-peer media streaming system encompassing the key functions of peer lookup, peer-based aggregated streaming, and dynamic adaptations to network and peer conditions. Particularly, PROMISE is based on a new application level P2P service called *CollectCast*. CollectCast performs three main functions: (1) inferring and leveraging the underlying network topology and performance information for the selection of send ...

**Keywords**: multimedia streaming, peer-to-peer systems

**23** Design and implementation of a resource sharing system as an extension to a personal computer operating system

Rita C. Summers, Mostafa Ebrahimi, John M. Marberg, Uri Zernik

May 1985 **Proceedings of the 1985 ACM SIGSMALL symposium on Small systems**

**Publisher:** ACM Press
Full text available: pdf(1.22 MB) Additional Information: full citation, abstract, references

The software and hardware available today for personal computers provides a broad range of support for personal productivity, business applications, research, programming, and other activities. If personal computers are connected in a local area network, they can form a system whose total resources are very great compared to those of each computer. With appropriate system mechanisms, users can share these resources. We describe the design and implementation of a resource sharing ...

**24** File and storage systems: The Google file system

Sanjay Ghemawat, Howard Gobioff, Shun-Tak Leung
October 2003 **Proceedings of the nineteenth ACM symposium on Operating systems principles**
**Publisher:** ACM Press
Full text available: pdf(275.54 KB) Additional Information: full citation, references, index terms

**Keywords**: clustered storage, data storage, fault tolerance, scalability

**25** Data organization and retrieval on parallel air channels: performance and energy issues

J. Juran, A. R. Hurson, N. Vijaykrishnan, Soontae Kim
March 2004 **Wireless Networks**, Volume 10 Issue 2
**Publisher:** Kluwer Academic Publishers
Full text available: pdf(238.18 KB) Additional Information: full citation, abstract, references, index terms, review

Our interest in the global information sharing process is motivated by the advances in communication and computation technologies, the marriage between the two technologies, and the almost limitless amount of information available on the network. Within the scope of the global information sharing process, when a user's request (potentially mobile) is directed to public data, broadcasting has been suggested as an effective mechanism to access data. The effectiveness of the schemes to retrieve pub ...

**Keywords**: access latency, energy awareness, global information system, indexing, mobile devices, scheduling, wireless communication

**26** Hibernator: helping disk arrays sleep through the winter

Qingbo Zhu, Zhifeng Chen, Lin Tan, Yuanyuan Zhou, Kimberly Keeton, John Wilkes
October 2005 **ACM SIGOPS Operating Systems Review , Proceedings of the twentieth ACM symposium on Operating systems principles SOSP '05**, Volume 39 Issue 5
**Publisher:** ACM Press
Full text available: pdf(654.56 KB) Additional Information: full citation, abstract, references, index terms

Energy consumption has become an important issue in high-end data centers, and disk arrays are one of the largest energy consumers within them. Although several attempts have been made to improve disk array energy management, the existing solutions either provide little energy savings or significantly degrade performance for data center workloads.Our solution, Hibernator, is a disk array energy management system that provides improved energy savings while meeting performance goals. Hibernator co ...

**Keywords**: disk array, disk layout, energy management, performance guarantee, storage system

**27**

Serverless network file systems
T. E. Anderson, M. D. Dahlin, J. M. Neefe, D. A. Patterson, D. S. Roselli, R. Y. Wang
December 1995 **ACM SIGOPS Operating Systems Review , Proceedings of the fifteenth ACM symposium on Operating systems principles SOSP '95**, Volume 29 Issue 5
**Publisher:** ACM Press
Full text available: pdf(2.48 MB) Additional Information: full citation, references, citings, index terms

28 MSXmin: a modular multicast ATM packet switch with low delay and hardware complexity
Rajgopal Kannan, Sibabrata Ray
June 2000 **IEEE/ACM Transactions on Networking (TON)**, Volume 8 Issue 3
**Publisher:** IEEE Press
Full text available: pdf(340.70 KB) Additional Information: full citation, references, citings, index terms

**Keywords**: asynchronous transfer mode, multistage interconnection networks, routing, switching circuits

29 Dynamic power management of electronic systems
Luca Benini, Alessandro Bogliolo, Giovanni De Micheli
November 1998 **Proceedings of the 1998 IEEE/ACM international conference on Computer-aided design**
**Publisher:** ACM Press
Full text available: pdf(1.19 MB) Additional Information: full citation, references, citings, index terms

30 Mobile applications: Impromptu: managing networked audio applications for mobile users
Chris Schmandt, Kwan Hong Lee, Jang Kim, Mark Ackerman
June 2004 **Proceedings of the 2nd international conference on Mobile systems, applications, and services MobiSys '04**
**Publisher:** ACM Press
Full text available: pdf(240.36 KB) Additional Information: full citation, abstract, references, index terms

This paper discusses the software architecture of Impromptu, a mobile IP-based audio computing platform, with an associated set of network-based applications and services. Impromptu merges the communication properties and universal mobility of the telephone with the multi-tasking and open protocol world of the handheld PC. Its supporting architecture handles multiple streaming audio applications, provides speech services for consistent audio user interfaces across applications, and enables user ...

**Keywords**: WiFi, architecture, audio applications, audio interface, mobility, multi tasking, speech interface, telephony, voice over IP

31 Quickly finding near-optimal storage designs
Eric Anderson, Susan Spence, Ram Swaminathan, Mahesh Kallahalla, Qian Wang
November 2005 **ACM Transactions on Computer Systems (TOCS)**, Volume 23 Issue 4
**Publisher:** ACM Press
Full text available: pdf(661.43 KB) Additional Information: full citation, abstract, references, index terms

Despite the importance of storage in enterprise computer systems, there are few adequate tools to design and configure a storage system to meet application data requirements efficiently. Storage system design involves choosing the disk arrays to use, setting the

configuration options on those arrays, and determining an efficient mapping of application data onto the configured system. This is a complex process because of the multitude of disk array configuration options, and the need to take into ...

32 A publish/subscribe CORBA persistent state service prototype
C. Liebig, M. Cilia, M. Betz, A. Buchmann
April 2000 **IFIP/ACM International Conference on Distributed systems platforms**
**Publisher:** Springer-Verlag New York, Inc.
Full text available: pdf(283.92 KB) Additional Information: full citation, abstract, references, citings

An important class of information dissemination applications requires 1:n communication and access to persistent datastores. CORBA's new Persistent State Service combined with messaging capabilities offer the possibility of efficiently realizing information brokers between data sources and CORBA clients. In this paper we present a prototype implementation of the PSS that exploits the reliable multicast capabilities of an existing middleware platform. This publish/subscribe architecture makes ...

33 Reliability Issues in Computing System Design
B. Randell, P. Lee, P. C. Treleaven
June 1978 **ACM Computing Surveys (CSUR)**, Volume 10 Issue 2
**Publisher:** ACM Press
Full text available: pdf(3.95 MB) Additional Information: full citation, references, citings, index terms

34 Scheduling techniques for embedded systems: Scheduler-based DRAM energy management
V. Delaluz, A. Sivasubramaniam, M. Kandemir, N. Vijaykrishnan, M. J. Irwin
June 2002 **Proceedings of the 39th conference on Design automation**
**Publisher:** ACM Press
Full text available: pdf(172.10 KB) Additional Information: full citation, abstract, references, citings, index terms

Previous work on DRAM power-mode management focused on hardware-based techniques and compiler-directed schemes to explicitly transition unused memory modules to low-power operating modes. While hardware-based techniques require extra logic to keep track of memory references and make decisions about future mode transitions, compiler-directed schemes can only work on a single application at a time and demand sophisticated program analysis support. In this work, we present an operating system (OS) ...

**Keywords:** DRAM, energy estimation, energy management, operating systems, scheduler

35 Probing the black box: Transforming policies into mechanisms with infokernel
Andrea C. Arpaci-Dusseau, Remzi H. Arpaci-Dusseau, Nathan C. Burnett, Timothy E. Denehy, Thomas J. Engle, Haryadi S. Gunawi, James A. Nugent, Florentina I. Popovici
October 2003 **Proceedings of the nineteenth ACM symposium on Operating systems principles**
**Publisher:** ACM Press
Full text available: pdf(365.12 KB) Additional Information: full citation, abstract, references, citings, index terms

We describe an evolutionary path that allows operating systems to be used in a more flexible and appropriate manner by higher-level services. An infokernel exposes key pieces of information about its algorithms and internal state; thus, its default policies become mechanisms, which can be controlled from user-level. We have implemented two prototype infokernels based on the linuxtwofour and netbsdver kernels, called infolinux and infobsd, respectively. The infokernels export key abstractions as ...

**Keywords**: information, mechanism, policy

36 Scalability, fidelity, and containment in the potemkin virtual honeyfarm

Michael Vrable, Justin Ma, Jay Chen, David Moore, Erik Vandekieft, Alex C. Snoeren, Geoffrey M. Voelker, Stefan Savage

October 2005 **ACM SIGOPS Operating Systems Review , Proceedings of the twentieth ACM symposium on Operating systems principles SOSP '05**, Volume 39 Issue 5

**Publisher:** ACM Press

Full text available: pdf(506.39 KB) Additional Information: full citation, abstract, references, index terms

The rapid evolution of large-scale worms, viruses and bot-nets have made Internet malware a pressing concern. Such infections are at the root of modern scourges including DDoS extortion, on-line identity theft, SPAM, phishing, and piracy. However, the most widely used tools for gathering intelligence on new malware -- network honeypots -- have forced investigators to choose between monitoring activity at a large scale or capturing behavior with high fidelity. In this paper, we describe an approa ...

**Keywords**: copy-on-write, honeyfarm, honeypot, malware, virtual machine monitor

37 Balancing performance and flexibility with hardware support for network architectures

Ilija Hadžić, Jonathan M. Smith

November 2003 **ACM Transactions on Computer Systems (TOCS)**, Volume 21 Issue 4

**Publisher:** ACM Press

Full text available: pdf(719.03 KB) Additional Information: full citation, abstract, references, index terms

The goals of performance and flexibility are often at odds in the design of network systems. The tension is common enough to justify an architectural solution, rather than a set of context-specific solutions. The Programmable Protocol Processing Pipeline (P4) design uses programmable hardware to selectively accelerate protocol processing functions. A set of field-programmable gate arrays (FPGAs) and an associated library of network processing modules implemented in hardware are augmented with so ...

**Keywords**: FPGA, P4, computer networking, flexibility, hardware, performance, programmable logic devices, programmable networks, protocol processing

38 Virtual machines: Scale and performance in the Denali isolation kernel

Andrew Whitaker, Marianne Shaw, Steven D. Gribble

December 2002 **ACM SIGOPS Operating Systems Review**, Volume 36 Issue SI

**Publisher:** ACM Press

Full text available: pdf(1.91 MB) Additional Information: full citation, abstract, references, citings

This paper describes the Denali isolation kernel, an operating system architecture that safely multiplexes a large number of untrusted Internet services on shared hardware. Denali's goal is to allow new Internet services to be "pushed" into third party infrastructure, relieving Internet service authors from the burden of acquiring and maintaining physical infrastructure. Our isolation kernel exposes a virtual machine abstraction, but unlike conventional virtual machine monitors, Denali does not ...

39 Level set and PDE methods for computer graphics

David Breen, Ron Fedkiw, Ken Museth, Stanley Osher, Guillermo Sapiro, Ross Whitaker

August 2004 **Proceedings of the conference on SIGGRAPH 2004 course notes GRAPH '04**

**Publisher:** ACM Press

Full text available: pdf(17.07 MB) Additional Information: full citation, abstract

Level set methods, an important class of partial differential equation (PDE) methods, define dynamic surfaces implicitly as the level set (iso-surface) of a sampled, evolving nD function. The course begins with preparatory material that introduces the concept of using partial differential equations to solve problems in computer graphics, geometric modeling and computer vision. This will include the structure and behavior of several different types of differential equations, e.g. the level set eq ...

**40** Extensibility safety and performance in the SPIN operating system

B. N. Bershad, S. Savage, P. Pardyak, E. G. Sirer, M. E. Fiuczynski, D. Becker, C. Chambers, S. Eggers

December 1995 **ACM SIGOPS Operating Systems Review , Proceedings of the fifteenth ACM symposium on Operating systems principles SOSP '95**, Volume 29 Issue 5

**Publisher:** ACM Press

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Best 200 shown Relevance scale

1 System-level power optimization: techniques and tools

Luca Benini, Giovanni de Micheli

April 2000 **ACM Transactions on Design Automation of Electronic Systems (TODAES)**, Volume 5 Issue 2

**Publisher:** ACM Press

Full text available: pdf(385.22 KB) Additional Information: full citation, abstract, references, citings, index terms

This tutorial surveys design methods for energy-efficient system-level design. We consider electronic sytems consisting of a hardware platform and software layers. We consider the three major constituents of hardware that consume energy, namely computation, communication, and storage units, and we review methods of reducing their energy consumption. We also study models for analyzing the energy cost of software, and methods for energy-efficient software design and compilation. This survery ...

2 Input/Output: PB-LRU: a self-tuning power aware storage cache replacement algorithm for conserving disk energy

Qingbo Zhu, Asim Shankar, Yuanyuan Zhou

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**Publisher:** ACM Press

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**Keywords**: cache management, disk storage, power management

3 Phoenix: a low-power fault-tolerant real-time network-attached storage device

Anindya Neogi, Ashish Raniwala, Tzi-cker Chiueh

October 1999 **Proceedings of the seventh ACM international conference on Multimedia (Part 1)**

**Publisher:** ACM Press

Full text available: pdf(1.38 MB) Additional Information: full citation, abstract, references, citings, index terms

Phoenix is a real-time network-attached storage device (NASD) that guarantees real-time data delivery to network clients even across single disk failure. The service interfaces that Phoenix provides are best-effort/real-time reads/writes based on unique object identifiers and block offsets. Data retrieval from Phoenix can be serviced in server push or client pull modes. Phoenix's real-time disk subsystem performance results from a standard cycle-based scan-order disk scheduling mechanism. H ...

4 GPGPU: general purpose computation on graphics hardware

David Luebke, Mark Harris, Jens Krüger, Tim Purcell, Naga Govindaraju, Ian Buck, Cliff Woolley, Aaron Lefohn

August 2004 **Proceedings of the conference on SIGGRAPH 2004 course notes GRAPH '04**

**Publisher:** ACM Press

Full text available: pdf(63.03 MB) Additional Information: full citation, abstract

The graphics processor (GPU) on today's commodity video cards has evolved into an extremely powerful and flexible processor. The latest graphics architectures provide tremendous memory bandwidth and computational horsepower, with fully programmable vertex and pixel processing units that support vector operations up to full IEEE floating point precision. High level languages have emerged for graphics hardware, making this computational power accessible. Architecturally, GPUs are highly parallel s ...

5 Human-computer interface development: concepts and systems for its management

H. Rex Hartson, Deborah Hix

March 1989 **ACM Computing Surveys (CSUR)**, Volume 21 Issue 1

**Publisher:** ACM Press

Full text available: pdf(7.97 MB) Additional Information: full citation, abstract, references, citings, index terms, review

*Human-computer interface management*, from a computer science viewpoint, focuses on the process of developing quality human-computer interfaces, including their representation, design, implementation, execution, evaluation, and maintenance. This survey presents important concepts of interface management: dialogue independence, structural modeling, representation, interactive tools, rapid prototyping, development methodologies, and control structures. *Dialogue independence* is th ...

6 Interposed proportional sharing for a storage service utility

Wei Jin, Jeffrey S. Chase, Jasleen Kaur

June 2004 **ACM SIGMETRICS Performance Evaluation Review , Proceedings of the joint international conference on Measurement and modeling of computer systems SIGMETRICS 2004/PERFORMANCE 2004**, Volume 32 Issue 1

**Publisher:** ACM Press

Full text available: pdf(339.02 KB) Additional Information: full citation, abstract, references, citings, index terms

This paper develops and evaluates new share-based scheduling algorithms for differentiated service quality in network services, such as network storage servers. This form of resource control makes it possible to share a server among multiple request flows with probabilistic assurance that each flow receives a specified minimum share of a server's capacity to serve requests. This assurance is important for safe outsourcing of services to shared utilities such as Storage Service Providers.Our appr ...

**Keywords**: differentiated service, fair sharing, multiprocessor scheduling, performance isolation, proportional sharing, quality of service, storage services, utility computing, weighted fair queuing

7 Towards an active network architecture

David L. Tennenhouse, David J. Wetherall

April 1996 **ACM SIGCOMM Computer Communication Review**, Volume 26 Issue 2

**Publisher:** ACM Press
Full text available: pdf(1.58 MB) Additional Information: full citation, abstract, citings, index terms

Active networks allow their users to inject customized programs into the nodes of the network. An extreme case, in which we are most interested, replaces packets with "capsules" - program fragments that are executed at each network router/switch they traverse.Active architectures permit a massive increase in the sophistication of the computation that is performed within the network. They will enable new applications, especially those based on application-specific multicast, information fusion, a ...

8 Distributed, object-based programming systems
Roger S. Chin, Samuel T. Chanson
March 1991 **ACM Computing Surveys (CSUR)**, Volume 23 Issue 1
**Publisher:** ACM Press
Full text available: pdf(2.97 MB) Additional Information: full citation, abstract, references, citings, index terms, review

The development of distributed operating systems and object-based programming languages makes possible an environment in which programs consisting of a set of interacting modules, or objects, may execute concurrently on a collection of loosely coupled processors. An object-based programming language encourages a methodology for designing and creating a program as a set of autonomous components, whereas a distributed operating system permits a collection of workstations or personal computers ...

**Keywords**: capability scheme, distributed operating systems, error recovery, method invocation, nested transaction, object model, object reliability, object-based programming languages, processor allocation, resource management, synchronization, transaction

9 Draft Proposed: American National Standard—Graphical Kernel System
Technical Committee X3H3 - Computer Graphics
February 1984 **ACM SIGGRAPH Computer Graphics**, Volume 18 Issue SI
**Publisher:** ACM Press
Full text available: pdf(16.07 MB) Additional Information: full citation

10 Active database systems
Norman W. Paton, Oscar Díaz
March 1999 **ACM Computing Surveys (CSUR)**, Volume 31 Issue 1
**Publisher:** ACM Press
Full text available: pdf(2.68 MB) Additional Information: full citation, abstract, references, citings, index terms, review

Active database systems support mechanisms that enable them to respond automatically to events that are taking place either inside or outside the database system itself. Considerable effort has been directed towards improving understanding of such systems in recent years, and many different proposals have been made and applications suggested. This high level of activity has not yielded a single agreed-upon standard approach to the integration of active functionality with conventional databa ...

**Keywords**: active databases, events, object-oriented databases, relational databases

11 Improving interaction: Display space usage and window management operation comparisons between single monitor and multiple monitor users
Dugald Ralph Hutchings, Greg Smith, Brian Meyers, Mary Czerwinski, George Robertson
May 2004 **Proceedings of the working conference on Advanced visual interfaces**

**Publisher:** ACM Press

Full text available: pdf(91.48 KB) Additional Information: full citation, abstract, references, citings, index terms

The continuing trend toward greater processing power, larger storage, and in particular increased display surface by using multiple monitor supports increased multi-tasking by the computer user. The concomitant increase in desktop complexity has the potential to push the overhead of window management to frustrating and counterproductive new levels. It is difficult to adequately design for multiple monitor systems without understanding how multiple monitor users differ from, or are similar to, si ...

**Keywords**: UI logs, automation, multiple monitors, space management, user interaction, window management

12 Aurora: a new model and architecture for data stream management

Daniel J. Abadi, Don Carney, Ugur Çetintemel, Mitch Cherniack, Christian Convey, Sangdon Lee, Michael Stonebraker, Nesime Tatbul, Stan Zdonik

August 2003 **The VLDB Journal — The International Journal on Very Large Data Bases**, Volume 12 Issue 2

**Publisher:** Springer-Verlag New York, Inc.

Full text available: pdf(585.97 KB) Additional Information: full citation, abstract, citings, index terms

Abstract.This paper describes the basic processing model and architecture of Aurora, a new system to manage data streams for monitoring applications. Monitoring applications differ substantially from conventional business data processing. The fact that a software system must process and react to continual inputs from many sources (e.g., sensors) rather than from human operators requires one to rethink the fundamental architecture of a DBMS for this application area. In this paper, we present Aur ...

**Keywords**: Continuous queries, Data stream management, Database triggers, Quality-of-service, Real-time systems

13 Wireless amd Mobile Networks Performance: Power-aware data management for small devices

Sami Rollins, Kevin Almeroth, Dejan MilojivHiE, Kiran Nagaraja

September 2002 **Proceedings of the 5th ACM international workshop on Wireless mobile multimedia**

**Publisher:** ACM Press

Full text available: pdf(98.99 KB) Additional Information: full citation, abstract, references, citings, index terms

Pervasive computing devices such as Personal Digital Assistants (PDAs) and laptop computers are becoming increasingly ubiquitous. The future promises even more advanced devices such as digital watches, jewelry, and even clothing. However, as pervasive devices become more widely used for more advanced applications, their resource limitations are becoming more apparent. In this work, we focus on data management and power limitations. We investigate the benefit of using power-aware schemes to autom ...

**Keywords**: content management, energy, small devices

14 Recovery management in QuickSilver

Rober Haskin, Yoni Malachi, Gregory Chan

February 1988 **ACM Transactions on Computer Systems (TOCS)**, Volume 6 Issue 1

**Publisher:** ACM Press

Full text available: pdf(2.21 MB) Additional Information: full citation, abstract, references, citings, index terms, review

This paper describes QuickSilver, developed at the IBM Almaden Research Center, which uses atomic transactions as a unified failure recovery mechanism for a client-server structured distributed system. Transactions allow failure atomicity for related activities at a single server or at a number of independent servers. Rather than bundling transaction management into a dedicated language or recoverable object manager, Quicksilver exposes the basic commit protocol and log rec ...

15 Policy optimization for dynamic power management

G. A. Paleologo, L. Benini, A. Bogliolo, G. De Micheli

May 1998 **Proceedings of the 35th annual conference on Design automation**

**Publisher:** ACM Press

Full text available: pdf(239.25 KB) Publisher Site

Additional Information: full citation, abstract, references, citings, index terms

Dynamic power management schemes (also called policies) can be used to control the power consumption levels of electronic systems, by setting their components in different states, each characterized by a performance level and a power consumption. In this paper, we describe power-managed systems using a finite-state, stochastic model. Furthermore, we show that the fundamental problem of finding an optimal policy which maximizes the average performance level of a system, subject to a ...

**Keywords**: emulation, functional simulation, reconstruction, visibility

16 Intelligent database caching through the use of page-answers and page-traces

Nabil Kamel, Roger King

December 1992 **ACM Transactions on Database Systems (TODS)**, Volume 17 Issue 4

**Publisher:** ACM Press

Full text available: pdf(3.08 MB)

Additional Information: full citation, abstract, references, citings, index terms

In this paper a new method to improve the utilization of main memory systems is presented. The new method is based on prestoring in main memory a number of query answers, each evaluated out of a single memory page. To this end, the ideas of page-answers and page-traces are formally described and their properties analyzed. The query model used here allows for selection, projection, join, recursive queries as well as arbitrary combinations. We also show how to apply the approach under update ...

**Keywords**: artificial intelligence, databases, page access

17 Integrated document caching and prefetching in storage hierarchies based on Markov-chain predictions

Achim Kraiss, Gerhard Weikum

August 1998 **The VLDB Journal — The International Journal on Very Large Data Bases**, Volume 7 Issue 3

**Publisher:** Springer-Verlag New York, Inc.

Full text available: pdf(603.01 KB) Additional Information: full citation, abstract, citings, index terms

Large multimedia document archives may hold a major fraction of their data in tertiary storage libraries for cost reasons. This paper develops an integrated approach to the vertical data migration between the tertiary, secondary, and primary storage in that it reconciles speculative prefetching, to mask the high latency of the tertiary storage, with the replacement policy of the document caches at the secondary and primary storage level, and also considers the interaction of these policies with ...

**Keywords**: Caching, Markov chains, Performance, Prefetching, Scheduling, Stochastic modeling, Tertiary storage

**18** Fortran 8X draft

Loren P. Meissner
December 1989 **ACM SIGPLAN Fortran Forum**, Volume 8 Issue 4
**Publisher:** ACM Press
Full text available: pdf(21.36 MB) Additional Information: full citation, abstract, index terms

**Standard Programming Language Fortran.** This standard specifies the form and establishes the interpretation of programs expressed in the Fortran language. It consists of the specification of the language Fortran. No subsets are specified in this standard. The previous standard, commonly known as "FORTRAN 77", is entirely contained within this standard, known as "Fortran 8x". Therefore, any standard-conforming FORTRAN 77 program is standard conforming under this standard. New features can b ...

**19** Relational Database Systemsr

Won Kim
September 1979 **ACM Computing Surveys (CSUR)**, Volume 11 Issue 3
**Publisher:** ACM Press
Full text available: pdf(2.67 MB) Additional Information: full citation, references, citings, index terms

**20** Serverless network file systems

Thomas E. Anderson, Michael D. Dahlin, Jeanna M. Neefe, David A. Patterson, Drew S. Roselli, Randolph Y. Wang
February 1996 **ACM Transactions on Computer Systems (TOCS)**, Volume 14 Issue 1
**Publisher:** ACM Press
Full text available: pdf(2.69 MB) Additional Information: full citation, abstract, references, citings, index terms

We propose a new paradigm for network file system design: serverless network file systems. While traditional network file systems rely on a central server machine, a serverless system utilizes workstations cooperating as peers to provide all file system services. Any machine in the system can store, cache, or control any block of data. Our approach uses this location independence, in combination with fast local area networks, to provide better performance and scalability th ...

**Keywords**: RAID, log cleaning, log structured, log-based striping, logging, redundant data storage, scalable performance



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